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09/751,029	12/29/2000	Robert H. Wilson	LEAR 0671 PUSP	7720

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EXAMINER	
KAO, CHIH CHENG G	
ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/751,029	WILSON, ROBERT H.	
	Examiner	Art Unit	
	Chih-Cheng Glen Kao	2882	

-- The MAILING DATE of this communication appears on the cover sh et with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☒ Claim(s) *1-3,5,6,8,12,13 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3,7* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

system 24 on page 7, line 16

system 50 on page 9, line 3

transmitter 52 on page 9, line 4

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 1-3, 5, 6, 8, 12, 13, and 19 are objected to because of the following minor informalities. There appears to be antecedent problems that were created by drafting oversights in the following areas: (claim 1, line 7, "the signal interrupts"), (claim 2, line 2, "the electromagnetic energy signal interrupts"), (claim 2, line 3, "the interrupts"), (claim 3, line 1, "the entry area"), (claim 5, lines 2-3, "the door jamb",) (claim 6, line 2, "the inner surface"), (claim 8, line 2, "the inner surface"), (claim 12, line 7, "the door"), (claim 12, line 13, "the signal interrupts"), (claim 12, line 16, "the motor"), (claim 13, line 2, "the interrupts"), (claim 19, line 9, "the forward travel"), and (claim 19, line 14, "the electromagnetic signal interrupts").

The following are suggestions for correcting the corresponding informalities: (claim 1, line 7, deleting "the"), (claim 2, delete "electromagnetic energy"), (claim 2, line 3, inserting - - signal- -), (claim 3, line 1, replacing "the" with - -an- -), (claim 5, lines 2-3, replacing "the" with - -a- -), (claim 6, line 2, replacing "the" with - -an- -), (claim 8, line 2, replacing "the" with - -an- -), (claim 12, line 7, inserting - -vehicle- -), (claim 12, line 13, deleting "the"), (claim 12, line 16, inserting - -drive- -), (claim 13, line 2, inserting - -signal- -), (claim 19, line 9, deleting "the"), and (claim 19, line 14, deleting "the").

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-7, 11, 12, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gal et al. (WO 98/50258) in view of Lu et al. (WO 94/08120) and Ross et al. (US Patent 4471274).

4. The following is with regards to independent claims 1 and 12.

With regards to claim 1, Gal et al. discloses a non-contact optoelectronic system and method for an automatic vehicle door closure to detect the presence of an obstruction (Page 2,

lines 2-5, and Page 6, lines 1-6), the system comprising at least one transmitter and sensor for detecting the signal emitted by the at least one transmitter (Fig. 1, #20).

With regards to claim 12, Gal et al. discloses a non-contact optoelectronic system and method for an automatic vehicle door closure to detect the presence of an obstruction (Page 2, lines 2-5, and Page 6, lines 1-6), the system comprising at least one transmitter and sensor for detecting the signal emitted by the at least one transmitter (Fig. 1, #20), the entry area defined by a passage in a vehicle body, a door jamb defining an outer periphery of the passage, and a vehicle door selectively positionable between an open and closed position (Fig. 1).

However, Gal et al. does not disclose an electromagnetic energy infrared signal, a control module in communication with the transmitter and sensor for monitoring and processing signal interrupts detected to detect an obstruction between the transmitter and sensor, wherein the module generates a motor control signal to stop and reverse a door upon detection of an obstruction, and a drive motor operatively connected to the motor for positioning the door between an open and closed position.

With regards to claims 1 and 12, Lu et al. teaches an electromagnetic energy infrared signal (Page 8, lines 25-32) and a control module in communication with the transmitter and sensor for monitoring and processing signal interrupts detected to detect an obstruction between the transmitter and sensor (Page 8, lines 9-12).

With regards to claim 1 and 12, Ross et al. further teaches generating a motor control signal or drive motor connected to the motor for positioning the door between an open and closed position and to stop and reverse or open a door upon detection of an obstruction (col. 2, lines 30-36).

With regards to claim 1 and 12, it would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the electromagnetic energy infrared signal of Lu et al. for detecting an obstruction with the device and method of Gal et al., since a ultrasonic and electromagnetic signal are considered art-recognized equivalents as shown by Lu et al. (Page 8, lines 25-32). One would be motivated to use an electromagnetic signal to create a narrow beam of energy for detection of an obstruction as implied from Lu et al. (Page 8, lines 1-12).

With regards to claim 1 and 12, it would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the control module of Lu et al. with the device and method of Gal et al., since one would be motivated to have a control module to control the opening, closing, stopping and reversing of the door in case of entrapment as implied from Lu et al. (Page 8, lines 9-12).

With regards to claim 1 and 12, it would also have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the motor reversing control and motor of Ross et al. with the device and method of Gal et al., since one would be motivated to have a door open if one was trapped between the door and the body of the car and for safety as implied from Ross et al. (col. 1, lines 15-20). One would also be motivated to have the door reverse or open to prevent damage.

5. With regards to claim 3, Gal et al. further discloses the entry area defined by a passage in a vehicle body, a door jamb defining an outer periphery of the passage, and a vehicle door selectively positionable between an open and closed position (Fig. 1).

6. With regards to claims 4 and 15, Gal et al. in view of Lu et al. and Ross et al. suggests a device and method as recited above. Gal et al. further disclose a pair of transmitters with one on the vehicle door (Fig. 1, #20).

However, Gal et al. does not disclose the transmitters on an inner surface of the vehicle door.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the transmitters on an inner surface of the vehicle door with the suggested device and method of Gal et al. in view of Lu et al. and Ross et al., since rearranging parts of an invention involves only routine skill in the art. One would be motivated to have the transmitters on the inner surface of the vehicle door to prevent the components from being damaged from external forces.

7. With regards to claim 5, Gal et al. in view of Lu et al., and Ross et al. suggests a device and method as recited above.

Gal et al. further discloses a single sensor on the door jamb (Fig. 1, #20).

However, Gal et al. does not disclose the sensor on an inner surface of the door jamb.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the sensor on an inner surface of the door jamb with the suggested device of Gal et al. in view of Lu et al. and Ross et al., since rearranging parts of an invention involves only routine skill in the art. One would be motivated to have the sensor on the inner surface of the door jamb to prevent the components from being damaged from external forces.

8. With regards to claims 6 and 16, Gal et al. in view of Lu et al. and Ross et al. suggests a device as recited above.

However, Gal et al. does not disclose sensors on an inner surface of the door jamb.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have sensors on an inner surface of the door jamb with the suggested device of Gal et al. in view of Lu et al. and Ross et al., since mere duplication of the essential working parts of a device only involves routine skill in the art. One would be motivated to have sensors to create more coverage area as implied from Gal et al. (Fig. 1).

9. With regards to claims 7 and 17, Gal et al. in view of Lu et al. and Ross et al. suggests a device as recited above.

However, Gal et al. does not disclose a sensor array on the inner surface of the door jamb to detect signals.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have a sensor array to detect signals on an inner surface of the door jamb with the suggested device of Gal et al. in view of Lu et al., Ross et al., and Chapdelaine et al., since mere duplication and rearrangement of the essential working parts of a device only involves routine skill in the art. One would be motivated to have sensor in an array to create an effective coverage of the area as implied from Gal et al. (Fig. 1).

10. With regards to claims 11 and 18, Gal et al. in view of Lu et al. and Ross et al. suggests a device and method as recited above.

However, Gal et al. does not disclose an infrared signal.

Lu et al. teaches an infrared signal (Page 8, lines 25-32).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have an infrared signal of Lu et al. for detecting an obstruction with the suggested device and method of Gal et al. in view of Lu et al. and Ross et al., since a ultrasonic and infrared signal are considered art-recognized equivalents as shown by Lu et al. (Page 8, lines 25-32). One would be motivated to use an electromagnetic signal to create a narrow beam of energy for detection of an obstruction as implied from Lu et al. (Page 8, lines 1-12).

11. Claims 2, 8-10, 13, 14, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gal et al. in view of Lu et al. and Ross et al. as applied to claims 1 and 12 above, and further in view of Chapdelaine et al. (US Patent 6157024).

12. With regards to claims 2 and 13, Gal et al. in view of Lu et al. and Ross et al. suggests a device as recited above.

However, Gal et al. does not disclose a control module process the signal interrupts by comparing against stored values to determine whether an obstruction is present.

Chapdelaine et al. teaches a control module process the signal interrupts by comparing against stored values to determine whether an obstruction is present (col. 10, lines 15-37).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the control module with stored values of Chapdelaine et al. with the suggested device of Gal et al. in view of Lu et al. and Ross et al., since one would be motivated to use this signal to stop a closure of the aperture as implied from Chapdelaine et al. (col. 10, lines 37-45) and prevent harm.

13. With regards to claims 8 and 9, Gal et al. in view of Lu et al. and Ross et al. suggests a device as recited above.

However, Gal et al. does not disclose a reflective coating on the inner surface of the vehicle door and door jamb to reflect the emitted signal.

Chapdelaine et al. further discloses a reflective coating on the inner surface to reflect the emitted signal (col. 11, lines 42-52).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the reflective coating of Chapdelaine et al. with the suggested device of Gal et al. in view of Lu et al. and Ross et al., since one would be motivated to increase reflectance to improve detector signal-to-noise ratio as implied from Chapdelaine et al. (col. 3, lines 1-10) for a better signal.

It would also have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the reflective coatings on inner surfaces of the vehicle door and door jamb with the suggested device of Gal et al. in view of Lu et al. and Ross et al., since rearranging parts of an invention involves only routine skill in the art. One would be motivated

to have the reflective coatings on the inner surfaces to prevent the components from being damaged from external forces.

14. With regards to claim 10, Gal et al. in view of Lu et al., Ross et al., and Chapdelaine et al. suggests a device as recited above.

However, Gal et al. does not disclose a metallic reflective coating on the inner surface of the vehicle door and door jamb.

With regards to claim 10, Chapdelaine et al. further discloses a metallic reflective coating (col. 12, lines 35-50).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the metallic reflective coating of Chapdelaine et al. with the suggested device of Gal et al. in view of Lu et al., Ross et al., and Chapdelaine et al., since one would be motivated to increase reflectance to improve detector signal-to-noise ratio as implied from Chapdelaine et al. (col. 3, lines 1-10) for a better signal.

It would also have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the coatings on inner surfaces of the vehicle door and door jamb with the suggested device of Gal et al. in view of Lu et al. and Ross et al., since rearranging parts of an invention involves only routine skill in the art. One would be motivated to have the reflective coatings on the inner surfaces to prevent the components from being damaged from external forces.

15. With regards to claim 14, Gal et al. in view of Lu et al. and Ross et al. suggests a device as recited above.

However, Gal et al. does not disclose activating the transmitter and sensor upon receiving a signal from a switching mechanism to operate drive motor to close.

Chapdelaine et al. further teaches activating the transmitter and sensor upon receiving a signal from a switching mechanism to operate drive motor to close (col. 8, lines 19-35).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have activation upon closure of Chapdelaine et al. with the suggested device of Gal et al. in view of Lu et al. and Ross et al., since one would be motivated to only activate for its function of detection obstructions thus saving on energy when not in use.

16. With regards to claim 19, Gal et al. discloses a method of detecting an obstruction in an automatic vehicle door closure, the method comprising the steps providing a non-contact optoelectronic system and method for an automatic vehicle door closure to detect the presence of an obstruction (Page 2, lines 2-5, and Page 6, lines 1-6), the system comprising at least one transmitter on the vehicle door and sensor on the door jamb for detecting the signal emitted by the at least one transmitter (Fig. 1, #20), the entry area defined by a passage in a vehicle body, a door jamb defining an outer periphery of the passage, and a vehicle door selectively positionable between an open and closed position (Fig. 1) for monitoring the presence of obstructions.

However, Gal et al. does not disclose the transmitters on an inner surface of the vehicle door, nor the sensor on an inner surface of the door jamb, nor a control module in communication with the transmitter and sensor for monitoring and processing signal interrupts

detected to detect an obstruction between the transmitter and sensor, nor activating the transmitter and sensor upon receiving a signal from a switching mechanism to operate drive motor to close, nor an electromagnetic energy infrared signal, nor processing a signal from the control to a drive motor connected to a door to stop closing based upon detection of an obstruction between the door and jamb.

Lu et al. a control module in communication with the transmitter and sensor for monitoring and processing signal interrupts detected to detect an obstruction between the transmitter and sensor (Page 8, lines 9-12).

Chapdelaine et al. further teaches activating the transmitter and sensor upon receiving a signal from a switching mechanism to operate drive motor to close (col. 8, lines 19-35).

Ross et al. further teaches processing a signal from the control to a drive motor connected to a door to stop closing based upon detection of an obstruction between the door and jamb (col. 2, lines 30-36).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the transmitters on an inner surface of the vehicle door with the method of Gal et al., since rearranging parts of an invention involves only routine skill in the art. One would be motivated to have the transmitters on the inner surface of the vehicle door to prevent the components from being damaged from external forces.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the sensor on an inner surface of the door jamb with the method of Gal et al., since rearranging parts of an invention involves only routine skill in the art. One

would be motivated to have the sensor on the inner surface of the door jamb to prevent the components from being damaged from external forces.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the control module of Lu et al. with the method of Gal et al., since one would be motivated to have a control module to control the opening, closing, stopping and reversing of the door in case of entrapment as implied from Lu et al. (Page 8, lines 9-12).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have activation upon closure of Chapdelaine et al. with the method of Gal et al., since one would be motivated to only activate for its function of detection obstructions thus saving on energy when not in use.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the electromagnetic energy infrared signal of Lu et al. for detecting an obstruction with the method of Gal et al., since a ultrasonic and electromagnetic signal are considered art-recognized equivalents as shown by Lu et al. (Page 8, lines 25-32). One would be motivated to use an electromagnetic signal to create a narrow beam of energy for detection of an obstruction as implied from Lu et al. (Page 8, lines 1-12).

It would also have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the processing control to the motor to stop closing of Ross et al. with the method of Gal et al., since one would be motivated to have a door open if one was trapped between the door and the body of the car and for safety as implied from Ross et al. (col. 1, lines 15-20). One would also be motivated to have the door reverse or open to prevent damage.

17. With regards to claim 20, Gal et al. in view of Lu et al., Ross et al., and Chapdelaine et al. suggests a method as recited above.

However, Gal et al. does not disclose a control module process the signal interrupts by comparing against stored values to determine whether an obstruction is present.

Chapdelaine et al. teaches a control module process the signal interrupts by comparing against stored values to determine whether an obstruction is present (col. 10, lines 15-37).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the control module with stored values of Chapdelaine et al. with the method of Gal et al. in view of Lu et al., Ross et al., and Chapdelaine et al., since one would be motivated to use this signal to stop a closure of the aperture as implied from Chapdelaine et al. (col. 10, lines 37-45) and prevent harm.

18. With regards to claim 21, Gal et al. in view of Lu et al., Ross et al., and Chapdelaine et al. suggests a method as recited above.

However, Gal et al. does not disclose an infrared signal.

Lu et al. further teaches an infrared signal (Page 8, lines 25-32).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have an infrared signal of Lu et al. for detecting an obstruction with the suggested method of Gal et al. in view of Lu et al., Ross et al., and Chapdelaine et al., since a ultrasonic and infrared signal are considered art-recognized equivalents as shown by Lu et al. (Page 8, lines 25-32). One would be motivated to use an electromagnetic signal to create a

narrow beam of energy for detection of an obstruction as implied from Lu et al. (Page 8, lines 1-12).

19. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gal et al. in view of Lu et al., Ross et al., and Chapdelaine et al. as applied to claim 19 above, and further in view of Boiucaner (US Patent 5142152).

Gal et al. in view of Lu et al., Ross et al., and Chapdelaine et al. suggests a method as recited above.

However, Gal et al. does not disclose a hardware fault detection of obstruction detection during the opening of an automatic door, wherein the step further comprises sending a pulse of infrared light from the transmitter to the sensor to test the system.

Boiucaner teaches a hardware fault detection of obstruction detection during the opening (col. 8, lines 15-20) of an automatic door (Fig. 1), wherein the step further comprises sending a pulse of infrared light (col. 4, lines 22-30) from the transmitter to the sensor (Fig. 1) to test the system (Fig. 10).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have hardware fault detection of Boiucaner the suggested method of Gal et al. in view of Lu et al., Ross et al., and Chapdelaine et al., since one would be motivated to run this test to insure that something that is being registered as an obstruction is an obstruction to be concerned with as implied from Boiucaner (col. 8, lines 15-30).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (703) 605-5298. The examiner can normally be reached on M - Th (8 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

gk
March 20, 2003

ROBERT H. KIM
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